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APPENDIX D

FIELD INVESTIGATIONS

D.0 FIELD INVESTIGATIONS

This section presents a brief description of each of the investigations associated with the former Raymark Facility and environs, in areas that include the Operable Unit No. 6 (OU6) Remedial Investigation (RI) properties. Investigations of properties potentially impacted by these Raymark Facility wastes have been conducted since 1992. Investigations were performed by Tetra Tech NUS (TtNUS) (also operating as Brown & Root Environmental (B&RE) and Halliburton NUS Corporation (HNUS); Environmental Laboratories, Inc. (ELI); Roy F. Weston, Inc. (Weston/TAT); Foster Wheeler Environmental Corporation (Foster Wheeler); Connecticut Department of Environmental Protection (CT DEP); Connecticut Department of Public Health and Addiction Services (CT DPHAS) under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR); and the National Oceanic and Atmospheric Administration (NOAA). Table 2-1 summarizes information collected from these investigations which is used in this report as appropriate. Many dates overlap because contractors were hired by a variety of entities (Environmental Protection Agency (EPA) State of Connecticut, Army Corps of Engineers) to perform specific tasks. Information collected during these investigations was used to meet the Remedial Investigation objectives presented in Section 1. Brief descriptions of these investigations are presented in chronological order.

D.1 Expanded Site Inspection and Vertical Sampling Program (1993)

Between July and October 1993, soil samples were collected from 600 East Broadway, the Vacant Lot at Housatonic Avenue, residential properties on Patterson and Clinton Avenues, properties along Elm Street, and properties along 3rd/4th/5th Avenues as part of the Expanded Site Inspections (ESIs)/Vertical Sampling Program (VSP). Weston prepared reports for five disposal areas located within this study area.

The soil sampling was conducted to provide information regarding the presence or absence of waste, waste characteristics, and extent of contamination. Soil horizons and individual sample collection locations were selected based on EPA recommendations, visual field observations, and data from Ground Penetrating Radar (GPR) interpretations. Samples were collected from soil borings ranging in depth from 0 to 16 feet below ground surface (bgs). The borings were advanced primarily using a Model 8-M Soil Probe Unit developed by Geoprobe Systems. Soil

samples collected from various locations and depths at each property were screened for lead, asbestos, and PCBs using EPA-approved screening methods. Approximately 15 percent of the samples were submitted for confirmatory analysis through the EPA Contract Laboratory Program (CLP); these samples were analyzed for target compound list (TCL) volatile organic compounds (VOCs), TCL semivolatile organic compounds (SVOCs), TCL pesticides/ polychlorinated biphenyls (PCBs), and target analyte list (TAL) metals. Selected samples were also analyzed under the EPA Special Analytical Services (SAS) program for dioxins/furans, PCBs, Multiple Extraction Procedure (MEP), and Toxicity Characteristic Leaching Procedure (TCLP) metals, SVOCs, pesticides/PCBs, and/or VOCs.

Summary reports for these investigations were completed by Weston (1994), and were presented in the *Final Technical Memorandum, Compilation of Existing Data, RI/FS, Raymark - Ferry Creek* (B&RE, 1997a). Field observations, soil boring logs, and analytical results summarized in these reports were used to evaluate the presence, and location of Raymark-type waste on the various properties investigated. The sample results were used to identify the most contaminated residential properties; these properties have been excavated, and the contaminated material transported to the former Raymark Facility and placed under the cap.

The sample results for the non-residential properties within this study area are evaluated as part of this RI Report. Future cleanup action will be conducted based in part on these data.

D.2 Phase I Remedial Investigation (1993 - 1995)

TtNUS (as HNUS) conducted an investigation on part of the study area and environs from 1993 through 1995. This work included various field investigations and sampling, and was conducted under the Alternative Remedial Contracting Strategy (ARCS), Contract No. 68-W8-0117, Work Assignment No. 42-1LH3. The field investigation included a soil boring and sampling program, monitoring well installation and sampling program, surface water and sediment sampling, a GPR survey, a topographic survey, and wetlands delineation. The investigation also included installation of groundwater monitoring wells and groundwater sampling. Activities relevant to this RI report are described below.

D.2.1 Soil Borings, Test Pits, and Soil Sampling (1994)

Soil borings were advanced on the 600 East Broadway, the Vacant Lot at Housatonic Avenue, and Housatonic Boat Club properties, and four test pits were excavated on the 600 East Broadway Property. Individual boring and test pit locations were selected in the field by EPA based on preliminary GPR survey interpretations and other available information. Twenty-seven soil borings were advanced to depths up to 22 feet using hollow stem auger or rotary drilling methods. Six additional borings were advanced at the Housatonic Boat Club property using a slide-hammer to depths of 4 feet.

Continuous split-barrel sampling was conducted throughout the advancement of each boring. Representative samples from borings and test pits were screened for asbestos, lead, copper, and PCBs using EPA-approved screening methods. Selected samples were also submitted for confirmatory analysis of TCL VOCs, TCL SVOCs, TCL pesticides/PCBs plus Aroclors 1262 and 1268, TAL metals, and dioxins/furans.

This work provided information on depth of Raymark waste, water table elevation, and extent of contamination. The information was used in part to define the contamination for the properties in this report.

D.2.2 Groundwater Monitoring Well Installation (1994)

From March through May 1994, TtNUS (as HNUS) installed 23 monitoring wells at eight clusters and one single well location. These well clusters, designated the 100-series wells, are located on the 600 East Broadway property and commercial properties along Ferry Boulevard. A single well was also located at the Housatonic Boat Club on Shore Road. The well was destroyed in 2000 during on-site removal activities and replaced in 2003. Additional 100-series wells were installed in 1999 (MW104B) at pre-existing clusters.

The 100-series wells were installed using drive and wash drilling methods. For each well cluster, the deepest boring was drilled first. Soil samples were collected using split spoons, logged, and field screened with a photoionization detector (PID) or flame ionization detector (FID). Soil samples were sent to an off-site laboratory for analysis of VOCs, SVOCs,

pesticides, PCBs, metals, and asbestos. The well-screen intervals of the subsequent wells drilled in each cluster were selected based on levels of contamination, using the VOC field analysis data, and the highest estimated hydraulic conductivity, using the grain-size data.

These wells are noted as the 100-series wells on properties in this report.

D.2.3 Ground Penetrating Radar Survey (March 1994)

A geophysical survey using GPR was performed in March 1994 by Hager-Richter Geoscience, Inc., a subcontractor to TtNUS. The GPR survey was conducted within three areas: 600 East Broadway, properties along Ferry Boulevard (including the Vacant Lot at Housatonic Avenue), and the Housatonic Boat Club Property. Twenty-three traverses totaling approximately 9,100 feet of profile were completed. The purpose of the GPR survey was to determine the presence, location, and character of wastes disposed of as fill at each area, including the location of potential buried vessels and subsurface utilities. This information was used to select soil boring and monitoring well locations, as well as to develop estimates of the thickness of Raymark waste on properties in this report.

D.2.4 Surface Water and Sediment Sampling (1994-1995)

Four rounds of surface water and sediment sampling were conducted at selected locations to evaluate potential contaminant migration from the Raymark Facility. In the course of the four sampling rounds, 140 locations (both within and outside the OU2 groundwater study area) were sampled, including streams, ponds, wet areas, and leachate outbreaks identified by EPA. Surface water samples were collected and submitted for laboratory analysis of TCL VOCs, TCL SVOCs, TCL pesticides/PCBs including Aroclors 1262 and 1268, and TAL metals. Field measurements included pH, temperature, specific conductivity, dissolved oxygen, and salinity. Sediment samples were submitted for laboratory analysis of TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, plus Aroclor 1262 and Aroclor 1268, TAL metals, asbestos, dioxin/furans, total organic carbon (TOC), and grain size. In the fourth sampling round, some sediment samples were also submitted for acid volatile sulfide/simultaneously extractable metals (AVS/SEM) analysis.

A limited salinity survey was conducted along Ferry Creek from Broad Street to the point where Ferry Creek and Long Brook Creek intersect. The study defined the saline/freshwater interface in Ferry Creek. Temperature and salinity were recorded at predetermined locations along Ferry Creek at both high and low tide, and sediment samples were collected at each monitoring location during low tide.

Information from this work was used to assess contaminant migration from properties in this report.

D.2.5 Wetlands Delineation (1994)

A team of wetland specialists comprised of personnel from EPA, U.S. Fish and Wildlife Service, and HNUS (now TtNUS) delineated the boundary separating wetlands from upland environments using the methodology described in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. The locations studied included Ferry Creek and the 600 East Broadway, Vacant Lot at Housatonic Avenue, Housatonic Boat Club, Beacon Point Area, and the Wetland Along Lockwood Avenue properties. The wetland boundary was staked and later surveyed by HNUS using Global Positioning System (GPS).

The wetlands boundary information was used on a number of properties in this report.

D.3 Comprehensive Site Investigation Sampling Program (1994 - 1995)

Using data developed by others, Comprehensive Site Investigation (CSI) reports were prepared by multiple EPA contractors in 1994 and 1995 for properties under investigation as part of the Stratford Superfund Sites program. The purpose of the CSIs was to determine the extent and magnitude of lead, PCB, and asbestos contamination associated with Raymark Facility waste disposal in surface and subsurface soils. The CSI reports were designed to provide site-specific data necessary to proceed with the Stratford Superfund Sites Removal Action Program. This program was terminated prior to the completion of all CSI reports.

Sample locations were selected based on a systematic grid approach for each property investigated. Grid intersections were set at 25-foot intervals and sampling was conducted at

each grid intersection. Surface soil samples were collected from depths of 0 to 12 inches bgs using a stainless steel trowel. Subsurface soil samples were obtained from depths of 1 to 12 feet bgs using a hand-operated Geoprobe® slide-hammer piston rod apparatus advanced hydraulically using a Terraprobe® truck-mounted unit. Soil samples from each boring were visually classified and logged. Constituents of all soils were characterized using the Burmister soil classification ranges, and soil color was described using Munsell color charts. Samples were composited from 1-foot intervals and screened at the on-site laboratory for asbestos, lead, and PCBs. Approximately 10 percent of the samples were submitted for confirmatory analysis at an off-site laboratory.

Site-specific data for numerous properties throughout Stratford have been generated through the CSI program. Final CSI Reports for the properties were completed in 1995, and report sections relevant to OU3 were presented in *the Final Technical Memorandum, Compilation of Existing Data, RI/FS, Raymark - Ferry Creek* (B&RE, 1997a).

The contaminant information generated by this work was used in the evaluation of OU6 properties, in particular to determine sampling locations.

D.4 Removal Action Post-Excavation Program (1994 - 1996)

Site-specific soil removal actions were performed at residential properties contaminated with Raymark waste based on the results of the CSI sampling program discussed in Section D.3. Upon completion of the soil removal at each property, soil samples were collected to ensure that the contaminated materials had been successfully removed. Removal action soil sample locations were selected based on a systematic grid approach for each property excavated. Grid intersections were set at 15-foot intervals; samples were collected at depths of 0 to 3 inches from each exposed trench wall, base, and perimeter using a pre-cleaned steel shovel or hand trowel. Samples were composited from each exposed surface and screened at the on-site laboratory for asbestos, lead, and PCBs. Approximately 10 percent of the samples were submitted for confirmatory analysis at an off-site laboratory. Once the contaminated materials were removed, the areas were backfilled with clean materials and seeded.

Post-Excavation Record Plans were prepared for these properties. The Post-Excavation Record Plans documented the soil removal action activities conducted at each property and showed that the established clean-up criteria had been achieved.

The information on removal action was used to determine areas that needed to be sampled for the presence or absence of Raymark waste.

D.5 Monitoring Well Installation - 1996

In March 1996, under EPA direction and approval, TtNUS installed seven 200-series monitoring wells, MW-201D through MW-207D, at seven locations situated due east of the former Raymark Facility. The wells were installed in order to evaluate the extent of groundwater contamination related to Raymark waste disposal activities. Prior investigations had indicated groundwater was flowing east from the former Raymark Facility toward the Housatonic River. The borings for the wells were advanced using the drive and wash drilling method. Soil samples were collected and analyzed for VOCs, SVOCs, pesticides, and metals by the EPA New England Regional Laboratory (NERL) in August 1996.

These wells are noted as the 200-Series wells on properties in this report.

D.6 Monitoring Well Installation and Groundwater Sampling – 1997

During September and October 1997, TtNUS constructed 30 monitoring wells, designated as the 200-series wells, at 11 clusters using the Vibra-Sonic Drilling method. Additional 200 series wells were later installed in 1999 (201B, 208B, and 216DB) and 2002 (202S, 203S, 207B, 210B, 213DB, 214B, 215DB, and 217S). In addition, wells were added to single 100-series wells installed earlier to form clusters, which would close data gaps identified during previous groundwater sampling. This work was also undertaken as part of the Phase I OU2 groundwater investigation.

Soil samples from the deepest boring at each well cluster were logged, field screened with a PID, and sent to a laboratory for VOC analysis. Subsequent overburden well screen intervals were selected based on maximum VOC concentrations noted or direct observation of

contamination. If VOCs were not detected by the PID or in the laboratory screening analysis, then zones with the highest estimated hydraulic conductivity (based on visual observations of the grain-size of the subsurface soils) were selected.

These wells were noted on properties as the 200-Series wells.

D.7 Ecological Risk Assessment (1996 - 1998)

An Ecological Risk Assessment (ERA) report was prepared for EPA Region I by NOAA and its contractor (NOAA, 1998). This assessment addressed the risks to ecological receptors posed by contaminants present in Ferry Creek, portions of the Housatonic River, and associated wetlands. The report is presented in its entirety in the Appendix D of the *Final Area I Remedial Investigation, Raymark-Ferry Creek OU3* (TtNUS, October 1999b).

In addition, supplements to the ERA report were prepared for support of OU3, Areas II and III. These are presented in their entirety in Appendix D of the Raymark – Ferry Creek OU3, Area II RI (TtNUS, 2000a) and in Appendix D of the Raymark – Ferry Creek OU3, Area III RI (TtNUS, 2000b).

This information was used, to a limited degree, to provide an ecological assessment of properties within the area around Ferry Creek and the Housatonic River.

D.8 Phase II Commercial Properties Site Investigation (1997)

Following a review of all the data from 1992 through 1996, TtNUS (as B&RE) identified data gaps. These data gaps indicated the need to collect additional field data to finalize the commercial properties RI and support the Feasibility Study (FS). Data gaps were identified for each area, except for the Selby Pond site (Area F), which had been investigated previously to determine the need for a Non-time Critical Removal Action (NTCRA) (B&RE, 1997b). Field investigations and sample collection were conducted by TtNUS during July and August 1997. Field activities included advancing soil borings and collecting soil samples, and collecting surficial soil and sediment samples.

Approximately 35 soil borings were advanced to a depth of 16 feet bgs. The intent was to advance the boring until "natural" soil was encountered. At the direction of EPA, no borings were advanced to depths greater than 16 feet bgs.

Soil samples were collected using split-barrels throughout the advancement of each boring, and were field screened using a PID or FID. Based on these field screening results, selected samples were sent for laboratory analysis of VOCs. Soils from each sampled interval were sent to the Connecticut Department of Health laboratory for analysis of asbestos. Soil samples were also sent to an off-site laboratory for screening of lead and copper using x-ray fluorescence (XRF). Based on the XRF screening results, approximately two samples were selected from each borehole for confirmation analysis. Analyses included TCL VOCs, TCL SVOCs, TAL metals, dioxin/furans, and/or TCL pesticides/PCBs (plus Aroclor 1262 and 1268). Selected soil samples were also analyzed for SPLP metals, based on the amount of soil recovered from the sampled interval, direction from EPA in the field, and the XRF field screening results.

Many of these sampling points are included on the properties within this report.

D.9 Monitoring Well Installation and Sampling – 1998 to 1999

TtNUS constructed 34 wells at 13 clusters (300-Series), and four wells at two clusters (400-series) using the drive and wash drilling method. The 300-series wells were installed throughout the study area. The 400-series wells were installed at the former Raybestos Memorial Ballfield located north of the former Raymark Facility. The 305 well cluster was replaced in 2002. Locations of well clusters were selected based on a review of existing data and the results of the seismic refraction survey, described below. The objective was to intentionally target the deepest portions of bedrock valleys with the thickest areas of overburden. Additional wells were also added to existing well clusters to fill data gaps identified during Phase 1 groundwater sampling.

Soil borings were advanced using the drive and wash drilling method. Soil samples from the deepest boring at each cluster were logged, field screened with a PID, and sent for off-site VOC screening. Subsequent overburden well-screen intervals were selected based on

maximum VOC concentrations from screening data or direct observation of contamination. If VOCs were not detected by the PID in the field or laboratory screening, then zones with the highest estimated hydraulic conductivity (based on visual observations) were selected for well screens.

These monitoring wells are noted on the properties in this report as the 300-series and 400-series wells.

D.10 Monitoring Well Installation – 2002 and 2003

As part of the OU2 Phase III groundwater investigation, TtNUS constructed 59 wells at 36 clusters (500-Series), replaced eight wells at three clusters, and constructed eight additional wells at existing well clusters. All of the groundwater monitoring wells were drilled using drive and wash methods, with the exception of three bedrock wells drilled using air-rotary methods. Thirty soil gas wells were advanced using either the direct push (geoprobe) or drive and wash drilling method. Soil gas well screens were placed at 7 to 8 feet bgs or 1 foot above the water table, whichever was higher. At two locations, soil gas well clusters were installed with the bottom of the screen at 3 feet bgs, 8 feet bgs, and 2 feet above the water table. The soil gas monitoring wells were paired with selected shallow groundwater monitoring wells in order to better define the interaction between contaminants in the water table and soil gas from the vadose zone. Locations of well clusters were selected based on a review of existing data. The objective was to target data gaps identified during the 1999 RI as well as construct a network of shallow wells in and upgradient of the residential neighborhood.

Soil borings were advanced using the drive and wash drilling method, with the exception of three bedrock wells, which were advanced using the air rotary method. Soil samples from the deepest boring at each cluster were logged, field screened with a PID and FID, and sent for off-site VOC screening analysis. Overburden well-screen intervals were selected based on maximum VOC concentrations from screening data or direct observation of contamination. If VOCs were not detected by the PID in the field or laboratory screening, the zones with the highest estimated hydraulic conductivity (based on visual observations) were selected. Soil samples considered to be representative of the grain size at the water table and vadose zone

were collected from each of these wells and analyzed for TOC and grain size. TOC and grain size analyses were used to support groundwater modeling efforts.

These monitoring wells are shown on the properties in this report as the 500-series wells.

D.11 Soil Sampling (2002 and 2003)

From June to August 2002 and from May to June 2003, many properties throughout Stratford were sampled to provide additional data to help identify the extent of soil contamination from disposal of Raymark waste. Residential, municipal, and commercial properties were sampled. If Raymark waste (as defined in Section 1.4) was encountered, these properties are included in this RI report.

The universe of properties sampled during this effort included all properties that had been identified over a 10-year period where the presence of Raymark waste was suspected. These locations were identified by a number of sources including, but not limited to, officials of the Town of Stratford, former Raymark records and/or employees, town records and neighbors/citizens. Reasons for suspicion included, without limitation, knowledge of past filling/disposal activities and locations, property conditions and topography, proximity to the former Raymark Facility, and proximity to areas subject to excavation actions by EPA's Removal Program. Each property was evaluated to determine if sampling was required, and if so, whether adequate sampling had been conducted to enable a determination for the potential presence of Raymark waste. Both EPA and the CT DEP participated in these evaluations.

Phase I soil samples were collected from shallow locations (0-4 feet deep) and were screened for the four primary contaminants that have been identified as indicators of Raymark waste: lead, copper, PCBs (Aroclor 1268), and asbestos. Phase II sampling was conducted at properties where potentially asbestos-containing materials were noted during the drilling program and where screening results from Phase I indicated potential Raymark waste. Phase II samples were collected to native material, and the samples from one boring on each property identified as Phase II were sent for laboratory analyses of VOCs, SVOCs, pesticides,

PCBs, total metals, dioxin, and SPLP metals. Results from this field investigation are included in the 2004 OU6 Draft Final Remedial Investigation.

The information from this activity was used to define the presence or absence of Raymark waste on the properties in this RI.

TABLE D-1
HISTORY OF ACTIVITIES ASSOCIATED WITH RAYMARK FACILITY AND ENVIRONS
REMEDIAL INVESTIGATION
RAYMARK – OU6
STRATFORD, CONNECTICUT

DATE	ACTIVITY	COMPANY CONDUCTING ACTIVITY*	GENERAL FINDINGS
1992	Sediment Sampling	Weston	Sediment samples collected as part of an EPA Site Inspection for Raymark Industries. No text reference.
1992-1994	CERCLA Removal Action at the Raymark Facility and on residential properties to abate imminent health risks	EPA	Mitigated imminent health risks posed by site conditions.
1993	Fish and Shellfish Sampling	EPA and CT DEP	Fish/shellfish analyses from samples collected from various Stratford water bodies, including Housatonic River, Ferry Creek, Selby Pond, and other ponds. Health advisory issued to limit consumption of eels from Selby Pond. No text reference.
1993	Soil Sampling	Metcalf & Eddy - CT DEP	Soil samples collected from residential properties in or around the Housatonic Boat Club. No text reference.
1993-1994	Surface Water Sampling at the Raymark Facility; Hydrologic Runoff Analysis Report issued	ELI	Surface water samples were collected by Raymark Industries to characterize the quantity and quality of drainage discharge into and out of Lagoon No. 4, before and after the Lagoon No. 4 by-pass was built. No text reference.
1993	Final Site Inspection Report for Raymark Industries issued	Weston	Included collection of sediment samples along Ferry Creek and the Housatonic River to monitor contaminant migration from the Raymark Facility. Numerous site-related organic and inorganic contaminants detected at elevated levels. Soil sampling detected site-related contaminants at the facility and nearby residential properties. Report also summarized previous sampling results (soil, sediment, groundwater). No text reference.
1993	Expanded Site Inspections (ESIs) and Vertical Sampling Program (VSP) – Soil Sampling	Weston	Surficial and subsurface soil and groundwater sampling conducted at various locations throughout Stratford identified contamination. Commercial and residential properties within the study area were investigated by Weston under TAT and ARCS, respectively. See Section D.1.
1993-1995	Phase I Remedial Investigation	HNUS	Field investigation work included soil boring and sampling program, monitoring well installation and sampling program (100-series wells), surface water and sediment sampling, GPR survey, topographic survey, and wetlands delineation. See Section D.2.
1994-1995	Comprehensive Site Investigation (CSI) sampling program and reports issued, Stratford Superfund Sites	HNUS and Foster Wheeler	Surficial and subsurface soil investigations and sampling for lead, PCBs, and asbestos; conducted at Stratford residential properties to provide data necessary to proceed with the Stratford Superfund Sites Remediation Program. Reports were prepared by multiple EPA contractors using data developed by others. See Section D.3.
1994	Ground Penetrating Radar (GPR) Survey Report issued	Hager-Richter	Data obtained on depth of fill and presence of buried metal objects at three properties within the study area (600 East Broadway, Housatonic Boat Club, and Vacant Lot at Housatonic Avenue). No text reference.

TABLE D-1 (cont.)
HISTORY OF ACTIVITIES ASSOCIATED WITH RAYMARK FACILITY AND ENVIRONS
REMEDIAL INVESTIGATION
RAYMARK – OU6
STRATFORD, CONNECTICUT

DATE	ACTIVITY	COMPANY CONDUCTING ACTIVITY*	GENERAL FINDINGS
1994-1996	Removal Action and Post-Excavation Programs	Foster Wheeler	Site-specific removal actions were performed at 46 properties based on the results of the CSI program (Section D.3). Post-excavation records for the removal actions document the remediation activities and indicate that the established clean-up criteria were achieved. See Section D.4.
1995	Final RCRA Facility Investigation Report, Raymark Industries, issued	ELI	Reported results from monitoring wells and soil borings, Phase IIA and IIB groundwater sampling rounds, nature and extent of Raymark Facility contamination. Continued to exceed drinking water standards. Information included in *Final Remedial Investigation Report*, April 1995.
1995	Final Remedial Investigation Report, Raymark Facility	HNUS	Compiled results reported by ELI and other contractors as part of RCRA Facility Investigation and CERCLA time-critical removal actions at Raymark Facility. Widespread groundwater and soil contamination at facility. Recommended additional investigations of surface water, sediment, and groundwater off site. See *Final Remediation Investigation Report* (HNUS, 1995).
1996-1997	Phase I OU2 Groundwater Remedial Investigation	B&RE	Field activities relevant to this report include monitoring well installation and soil classification. See Sections D.5 and D.6.
1996-1998	Ecological Risk Assessment	NOAA	Addressed risks to ecological receptors posed by hazardous Raymark Facility waste materials present in Ferry Creek, portions of the Housatonic River, and associated wetlands. See Section D.7.
1997	Phase II Commercial Properties Site Investigation	B&RE	Field investigation included soil and sediment sampling; 35 soil borings were advanced to 16 feet. Work was conducted to finalize the commercial properties RI and support the FS. See Section D.8.
1997	Draft Phase II and Draft Phase III Tech Memos, Selby Pond issued	B&RE	Reported nature and extent of surface water and sediment contamination in and around Selby Pond. Identified hydrologic connection between Ferry Creek and pond. Recommended consideration of remedial action to be combined with that of Ferry Creek. See *Draft Final Area II Remedial Investigation* (Tetra Tech NUS, Inc., 2000a).
1997	Final Tech Memo, Compilation of Existing Data, Raymark - Ferry Creek issued	B&RE	Compiled existing data. Identified data gaps to be filled during Raymark - Ferry Creek RI. See *Final Area I Remedial Investigation* (Tetra Tech NUS, Inc. 1999b).
1998	Hydrologic and Hydraulic Analysis, Remedial Investigation and Feasibility Study, Raymark – Ferry Creek OU3	ACOE	Evaluated the flooding potential of Ferry Creek and surrounding drainage areas. See *Final Area I Remedial Investigation* (Tetra Tech NUS, Inc. 1999b).

TABLE D-1 (cont.)
HISTORY OF ACTIVITIES ASSOCIATED WITH RAYMARK FACILITY AND ENVIRONS
REMEDIAL INVESTIGATION
RAYMARK – OU6
STRATFORD, CONNECTICUT

DATE	ACTIVITY	COMPANY CONDUCTING ACTIVITY*	GENERAL FINDINGS
1998	Draft Evaluation of Raymark Superfund Data for PRG Development	SAIC	Evaluated historical and recently collected chemistry and toxicity data for development of preliminary remediation goals for Raymark-related contaminants of concern. No text reference.
1998-1999	Phase II OU2 Groundwater Remedial Investigation	TtNUS	Field activities relevant to this report include monitoring well installation and soil classification. See Section D.9.
1999	Evaluation of Ecological Risk to Avian and Mammalian Receptors in the Vicinity of Upper and Middle Ferry Creek	SAIC	Evaluated potential risk to avian and mammalian receptor species utilizing habitat in upper and middle Ferry Creek. Information included in the *Final Area I Remedial Investigation* (Tetra Tech NUS, Inc. 1999b).
1999	Phase III Ecological Risk Assessment; characterization of Areas C-F	SAIC	Conducted Site-Specific Marine Ecological Investigation to assess potential ecological risks to the aquatic environments of Areas C-F. Information included in *Draft Final Area II and III Remedial Investigation* (Tetra Tech NUS, Inc. 2000a and 2000b).
1999	Draft Technical Memorandum Preliminary Screening of Alternatives – OU3	TtNUS	Basis for Remedial Alternatives Screening Reports to be presented in 2004.
1999	Final Remedial Investigation Report – OU4	TtNUS	Remedial Investigation report issued in 1999.
1999	Final Remedial Investigation Report - Area I – OU3	TtNUS	Remedial Investigation report issued in 1999.
1998-1999	Seismic Refraction Survey Report	Hager-Richter	Data obtained to determine depth and configuration of top of bedrock. See Section D.10.
2000	Draft Technical Memorandums, OU3, OU4, OU7, OU8, - Remedial Alternatives Screening Report (4 Reports)	TtNUS	To be incorporated into the Comprehensive Feasibility Study Report.
2000	Draft Final Remedial Investigation Report -OU2	TtNUS	Updated Remedial Investigation Report to be released in 2004.
2000	Draft Final Remedial Investigation Report - Area II - OU3	TtNUS	Remedial Investigation Report released in 2000. For purposes of the Feasibility Study this will become OU7.
2000	Draft Final Remedial Investigation Report - Area III - OU3	TtNUS	Remedial Investigation Report released in 2000. For purposes of the Feasibility Study this will become OU8.
2000	Draft Technical Memorandum - OU6 – Additional Properties	TtNUS	Initial presentation of Property Information. This Draft Final Remedial Investigation document supercedes this report.
2002 -2003	Monitoring Well Installation	TtNUS	Field activities relevant to this report include monitoring well installation and soil classification. See Section D.10.

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TABLE D-1 (cont.)
HISTORY OF ACTIVITIES ASSOCIATED WITH RAYMARK FACILITY AND ENVIRONS
REMEDIAL INVESTIGATION
RAYMARK – OU6
STRATFORD, CONNECTICUT

DATE	ACTIVITY	COMPANY CONDUCTING ACTIVITY*	GENERAL FINDINGS
2002-2003	Soil Sampling	TtNUS	Soil borings were advanced at 95 properties to identify Raymark waste. Identified 27 properties with Raymark waste. See Section D.11.

Notes:

* - ACOE = Army Corp of Engineers. ELI was hired by Raymark Industries, Inc. to perform environmental investigations at the Raymark Facility. Metcalf & Eddy performed environmental sampling under contract to CT DEP. Foster Wheeler was contracted by U.S. ACOE to perform environmental investigations to support the Stratford Superfund Sites Removal Action Program. Weston was contracted by EPA to perform environmental investigations at the Raymark Facility and environs, including residential and commercial properties in Stratford, under TAT and ARCS. NOAA and their contractor performed ecological risk assessment work for EPA. HNUS/B&RE was contracted by EPA to perform environmental investigations at the Raymark Facility and environs to complete associated RI/FS activities under ARCS and RAC. Hager-Richter Geoscience, Inc. was subcontracted by HNUS to perform a GPR survey to support the RI/FS activities. TtNUS was contracted by EPA to perform investigations for the Raymark Superfund site.

CSI - Comprehensive Site Investigation
ESI - Expanded Site Inspection
GPR - Ground Penetrating Radar
VSP - Vertical Sampling Program